

## Changes in *Anopheles funestus* biting behaviour following universal coverage of long-lasting insecticidal nets in Benin

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Behavioural modification of malaria vectors in response to vector control methods is of great concern. We investigated whether full coverage of Long-Lasting Insecticide-treated mosquito Nets (LLIN) may induce a switch in biting behaviour in *Anopheles funestus*, a major malaria vector in Africa.

Human-landing collections were conducted indoor and outdoor in two villages (Lokohoué and Tokoli) in Benin prior, 1 year and 3 years after implementation of universal LLIN coverage. Proportion of Outdoor Biting (POB) and Median Catching Times (MCT) were compared. The resistance of *An. funestus* to deltamethrin was monitored using bioassays.

MCT of *An. funestus* switched from 02:00 in Lokohoué and 03:00 in Tokoli to 05:00 after 3 years (Mann-Whitney p-value<0.0001). In Tokoli, POB increased from 45% to 68.1% (OR=2.55; 95CI=1.72-3.78;p<0.0001) 1 year after the universal coverage whereas POB was unchanged in Lokohoué. In Lokohoué, however, the proportion of *An. funestus* that bites after 06:00 was 26%. Bioassays showed no resistance to deltamethrin.

This study provides evidence for a switch in malaria vectors biting behaviour following the implementation of LLIN at universal coverage. These findings might have direct consequences for malaria control in Africa and highlighted the need for alternative strategies for better targeting malaria vectors.